

Investment Brief for the Electricity Sector in Tanzania

Overview

Tanzania has experienced real annual GDP growth rates of 3% - 7% since the 1990s. In 2012, Tanzania’s real annual GDP grew by 6.4% (World Bank, 2014). Moreover, Tanzania passed the Millennium Challenge Corporation’s (MCC) annual scorecard of country performance in 2013 and was selected in December, 2013 as eligible for a second MCC compact (MCC, 2014). Despite these positive developments, underinvestment and weak financial performance in Tanzania’s energy sector continue to be significant barriers to continued economic growth.

Currently, Tanzania has an installed generation capacity of only about 1,500 MW, or 0.033 kW per capita. By comparison, South Africa and the United States have generation per capita of 0.85kW and 3.54 kW, respectively. Tanzania has a low per capita electricity consumption of 100 kWh. Electricity demand in the country is increasing rapidly mainly due to accelerated productive investments, increasing population, and increasing access to electricity. Hence, the government is encouraging investments to increase available generation, further expand electricity access, reform the distribution system, and develop new indigenous sources of energy.

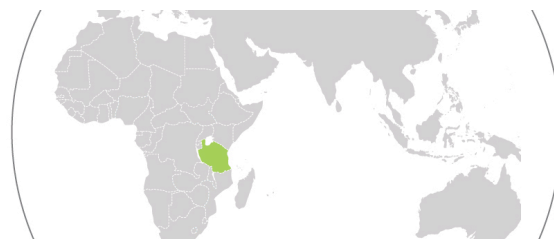
Energy Demand

	2007	2008	2009	2010	2011
Energy Generated (GWh)	4232.4	4449.0	4833.7	5371.7	5219.5
Energy Sold (GWh)	3178.1	3377.4	3589.3	4047.7	4000.2
Peak Demand (MW)	653.3	693.8	755.4	832.6	823.0
Number of Customers in '000	667.5	723.9	783.3	849.2	923.8

In 2013, nearly 40% of electricity generation resources were renewable energy sources, primarily hydropower, while the remaining sources were natural gas and other fossil fuels.

Electricity Generation (2013 est.)

Sources of Electric Power Generation		Installed Capacity	
		(MW)	Percentage
Renewable Energy	Hydro	556	
	Geothermal	-	
	Wind	-	
	Biomass & Waste	19	
	Cogeneration	-	
	Imports	14	
	Total	589	39.5%
Fossil Fuels	Natural Gas Turbines	594	
	Diesel & Oil	322	
	Total	916	61.4%
Installed Capacity		1,491 MW	



Economic Development Policies

The Tanzania Development Vision 2025 (Vision 2025) published by the Planning Commission in 1999 is still the main strategy document in outlining the general development for Tanzania. Vision 2025 has been made more concrete in the Tanzania Long-Term Perspective Plan, published in June 2012, which outlines a roadmap to a middle income country. Within Vision 2025, the Big Results Now (BRN) initiative aims to speed up project completion in six priority sectors. As a priority sector, Energy BRN focuses on finalizing 29 key projects and structural changes before mid-2016. Energy BRN proposes several steps to increase natural gas generation, improve electricity access, strengthen the financial capacity of the public utility, Tanzania Electric Supply Company (TANESCO), and develop mini- and off-grid renewable opportunities. Energy BRN’s short term new generation expansion plan is detailed below:

Generation Expansion Plan				
MW	2014	2015/16	2016/17	Total
Natural Gas	150	1,010	-	1,160
Coal	-	-	400	400
Wind	-	-	100	100
Cogeneration	-	30	-	30
Small Hydro(<10 MW)	1	28	13	42
Biomass & Waste	1	1	4	6
Cumulative Additions				1,738

Investment Climate

Tanzania recognizes the importance of creating a sustainable environment conducive to inward Foreign Direct Investment and has developed an enabling framework, including:

- The One Stop Investment Center, an investment facilitation mechanism that brings all relevant governmental agencies in one location to streamline the provision of services to investors.
- Any investor is guaranteed the free importation and convertibility of foreign exchange.
- Any investor is guaranteed the unconditional transferability of funds through any authorized dealers.
- Investments in Tanzania are guaranteed against nationalization and expropriation.
- Tanzania is a member of the Multilateral Investment Guarantee Agency and International Centre for Settlement of Investment Disputes.
- To date, none of the major rating agencies has given Tanzania a sovereign credit rating.

Private Sector Focus

Tanzania is developing a market-based economy, where the role of the government is to act as regulator of competitive markets rather than to act as a participant in those markets. Tanzania is open to both private sector investments from local sources as well as from foreign sources of capital, and has developed a number of policies aimed at attracting foreign capital. According to the United Nations Conference on Trade and Investment’s World Investment Report, 2012, Tanzania attracted a record US\$ 1.1 billion in foreign investments, exceeding inbound investments in other regional countries such as Kenya.

The government of Tanzania is looking to the private sector to deliver a substantial portion of required electricity infrastructure investments and earlier created the Small Power Producer program, a feed-in tariff for small renewable energy projects. The Public Private Partnership (PPP) Act of 2010 and the Private Partnership Regulations passed in 2011 were enacted to support private sector investment under PPP.



Energy Sector Institutions

The key public sector institutions involved in managing and regulating the Kenyan electricity sector include:

Ministry of Energy and Minerals (MEM) - MEM is mandated to develop energy and mineral resources and manage the energy sector. It is responsible for the formulation and articulation of policies to create an enabling environment for stakeholders in the sector. The MEM plays an essential policy guidance role, complementing the other major players (i.e., the REA, TANESCO, EWURA, private companies, and financiers). See www.mem.go.tz

Energy and Water Utilities Regulatory Authority (EWURA) - EWURA is an autonomous, independent regulatory authority established by the Energy and Water Utilities Regulatory Authority Act. It is responsible for the technical and economic regulation of Tanzania's electricity, petroleum, natural gas, and water sectors. See www.ewura.go.tz

Tanzania Electric Supply Company (TANESCO) - TANESCO is a vertically-integrated utility owned by the Government of Tanzania and is the country's principal electricity generator, transmitter, and distributor. Currently, it provides the vast majority of the effective generating capacity to the national grid, and is responsible for transmission and distribution, serving customers on the main grid and in 20 isolated grids. See www.tanESCO.co.tz

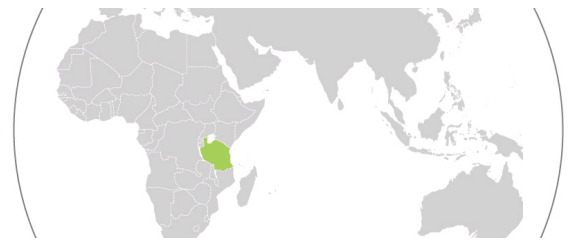
Tanzania Petroleum Development Corporation (TPDC) - TPDC is the state owned corporation through which MEM implements its petroleum exploration and development policies. See www.tpdC.co.tz

Rural Energy Agency (REA) - REA is an autonomous body under MEM that became operational in October 2007. Its principal responsibilities are to: (i) promote, stimulate, facilitate, and improve modern energy access in rural areas to support economic and social development; (ii) promote rational and efficient production and use of energy and facilitate the identification and development of improved energy projects and activities in rural areas; (iii) finance eligible rural energy projects through the Renewable Energy Fund (REF); (iv) prepare and review application procedures, guidelines, selection criteria, standards, and terms and conditions for the allocation of grants; (v) build capacity and provide technical assistance to project developers and rural communities; and (vi) facilitate the preparation of bid documents for rural energy projects. See www.rea.go.tz

Investment Opportunities

Tanzania has abundant indigenous sources of energy which may be used to generate power, including:

- **Hydro power** potential is estimated at 4,700 MW with only 12% developed. Large hydro potential sites include Ruhudji (360 – 480 MW).
- **Small hydropower** estimated potential is 475 MW with only 2% developed. Moreover, with a large isolated rural population in communities unable to access the national grid, the government of Tanzania has placed rural electrification as a major component for its rural development programs to meet the demand. The Government of Tanzania through REA is prepared to encourage private investors to tap hydroelectric power generation.
- **Natural gas** reserves are estimated to be 46.5 trillion cubic feet (TCF) (December, 2013), equivalent to more than 9 billion barrels of oil. Despite these discoveries, it is only Songo Songo and Mnazi Bay wells with probable reserves of about 4 TCF that have been developed. Some of the identified gas-fired power projects include Kinyerezi I, II, III and IV (150 MW, 240 MW, 600 MW and 500 MW respectively), and Kilwa Energy (210 MW). TANESCO is also planning a competitive tender for a new power plant on the outskirts of Dar es Salaam in Mkuranga in 2015.



- **Biomass** comes in a variety of forms, which may be utilized as an energy resource. It is possible to classify the material into two main groups: woody biomass and agro-forestry waste (crop wastes, animal manure, and forestry processing wastes). These materials can be burned directly or first converted into solid (charcoal), liquid (ethanol) and gaseous fuels (biogas, producer gas). For the biomass residues there are about 15 million tons/annum of crop residues, animal droppings from 14 million cattle, 11 million goats and sheep, 200,000 ton of volatile solids of sisal waste and 1.1 million tons/annum of forest residues. There is a potential of more than 500 MW, sustained yield of 24.3 million cubic meters per annum. The country also has potential for bio fuels including both crops for ethanol and bio-diesel production.
- **Solar:** Tanzania has high levels of solar energy, ranging between 2,800 to 3,500 hours of sunshine per year and a global radiation of between 4 to 7 kWh per square meter per day. Solar resources are especially good in the central section of the country. Both solar photovoltaic and solar thermal technologies are in development in the country.
- **Geothermal resource** potential could be as high as 650 MW. The currently exploitable potential has been estimated in the range of 140-380 MW. Most of the already identified sites with hot springs are located in areas transacted by the East African Rift Valley.
- **Wind Power:** Preliminary wind resource assessments show wind in certain parts of Tanzania adequate to support commercial electricity generation. Many of Tanzania’s wind resources are located along coastlines, the highland plateau regions of the Rift valley, on the plains, and around the Great Lakes. Wind resource assessments have been made at different sites including Litembe (Mtwara), Mkumbara (Tanga), Gomvu (Dar es Salaam), Karatu (Manyara), Kititimo (Singida), Makambako (Iringa) and Mafia. Existing wind projects under development include Makambako (100 MW) and Singida (two projects – 100 MW each).
- **Coal reserves** are an abundant resource in Tanzania. A conservative estimate is 1.9 billion tons with 25% proven reserves; however, Tanzania is estimated to hold a potential of up to 5 billion tons. Coal sites include Kiwira, Mchuchuma/Katewaka, Ngaka, Rukwa and around Lake Victoria. Currently no power is generated from these coal fields; however, the Government of Tanzania has plans to utilize this resource for power generation¹.

Tanzania has a wide range of fuel resources and current plans by the Government express a desire to diversify generation sources as part of expanding rural access and attracting private sector investment.

For more information on Power Africa visit: www.usaid.gov/powerafrica

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¹ US government support for new coal plants overseas may be restricted.